Hainan Commercial Space Launch Site Scales Up Development

Introduction

Recent coverage by WeChat public accounts indicates that the Hainan Commercial Space Launch Site (HCSLS, 海南商业航天发射场) is continuing to develop at a rapid pace and is now able to accommodate virtually all commercial launch vehicles. A second launchpad is coming online while construction is beginning on two further launch pads as well as an expanded technical area. The site's growth looks set to advance further, with local and national political institutions providing policy support and the Wenchang International Aerospace City's (WIAC, 文昌国际航天城) budget enjoying a 30-percent boost.

This level of commitment appears to be motivated by a belief that HCSLS is best-placed among China's suite of space launch facilities to achieve low-cost, high-density launch services—a capability that is imperative for China to meet its goals of establishing and maintaining proliferated low earth orbit (LEO) constellations. An April 2025 article in *Economic Daily* (经济日报) expanded upon the reasons for building China's first dedicated commercial launch site on Hainan. It noted that reusability was a key driver, as first-stage boosters alone can cost upwards of 70 million RMB (US$9.75 million). Unlike inland sites such as Jiuquan or Taiyuan, HCSLS's coastal location enables sea-based recovery of rocket stages. This reduces risks to civilian populations and simplifies transport to recovery and reuse facilities, particularly those already under construction in Hainan.

The article further observed that HCSLS's low latitude provides a rotational velocity boost that reduces the fuel needed to reach a given orbit. Combined with tax incentives from the Hainan Free Trade Port (海南自由贸易港), these factors make HCSLS a cost-effective site for commercial launches. As noted in a 2021 policy document issued by the National Development and Reform Commission (发展改革委) and the Ministry of Commerce (商务部), HCSLS is intended to become a "world-leading, market-based space launch site." As this brief will explain, there is no reason to doubt the likelihood of HCSLS achieving this objective.

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Hainan Can Field Most Commercial Launch Vehicles

HCSLS has achieved dual-launchpad capability. In November 2024, the site's Number 2 launch pad achieved its first successful rocket launch. Just four months later, in March 2025, the Number 1 launch pad followed suit, sending a Long March-8 (长征八号) rocket into orbit with 18 satellites for the Qianfan satellite internet constellation (千帆星座). This milestone means the launch complex has progressed from initial construction to dual-pad operational status in just three years.

While the Number 1 launch pad is tailored to the Long March-8, Number 2 is equipped with both fixed and mobile platforms and a hydraulic erection device, allowing it to accommodate rockets ranging from 3.35 to 5 meters in diameter. According to an *Economic Daily* report in April 2025,

this means that Number 2 launch pad is compatible with 19 different launch vehicle types from 10 companies, effectively covering most rockets currently in use across China's commercial space sector.

Surging Investment and Government Backing

The Wenchang International Aerospace City, which hosts the launch site, is seeing a surge in funding. Annual investment is projected to rise from 7.64 billion RMB in 2024 (US$1 billion) to 11 billion RMB (US$1.5 billion) in 2025, after already growing more than 20 percent from the previous year. The investment is aimed at supporting the development of a closed-loop space supply chain in Hainan that encompasses rocket manufacturing, satellite development, and space data services, while also nurturing new "space+" industries that link space technology to other areas of the economy.

Political support is strong at both provincial and national levels. At an April investment conference, Hainan Provincial Defense, Science and Technology Office (海南省国防科技工业办公室) Deputy Director Huang Wenliang (黄文亮) reaffirmed official backing, emphasizing the goal of achieving mature low-cost launch capacity by 2030. These statements align with directives from Beijing, including the 2025 Government Work Report's call for "healthy development of the commercial space sector."

Infrastructure Expansion and Launch Cadence Goals

HCSLS's next phase includes construction of the Number 3 and Number 4 launch pads. This new phase began in early 2025 and is expected to be completed by late 2026. According to HICAL Party Secretary and Director-General Yang Tianliang (杨天梁), the site is targeting 60 launches per year—although based on intended launch cadences, actual capacity could exceed 100 launches once all four pads are operational. Number 1 is designed to support one launch every two weeks, while Number 2 can handle one every ten days.

To support this launch cadence, the technical area is undergoing a significant expansion. New facilities include a spacecraft testing and refueling port cover factories, a solid rocket testing plant, and a rocket storage warehouse. Additional support infrastructure includes maintenance facilities for rocket transport vehicles and a first-stage recovery factory. A 17,000-square-meter methane storage facility is also under construction, expanding fuel options for different launch vehicle designs. These upgrades are central to HCSLS's ambition to support high-density launch operations.

Beyond physical expansion, HCSLS is also developing digital and logistical innovations to improve launch efficiency and long-term sustainability. This includes developing a telemetry, tracking, and command (TT&C) system that allows full flight zone monitoring and a digital twin of the surrounding area to enhance real-time operational planning. It also comprises the roll-out of

a maritime recovery system that is set to be operational by the end of 2026 and will further reduce launch costs given the expense of producing first-stage boosters in particular.

These systems support the broader goal of creating a closed-loop space supply chain on Hainan, encompassing satellite and rocket production, launch, recovery, reuse, and data applications—all based on-site.

Hainan To Anchor Space Economy

HCSLS is already attracting major players from across China's space sector. Commercial launch companies like Space Pioneer (天兵科技), Galactic Energy (星河动力), and i-Space (星际荣耀) have established a presence. By July 2025, i-Space plans to operationalize a maritime recovery system supporting the launch, recovery, and reuse of up to 12 rockets per year. These companies are investing in on-site assembly and testing infrastructure, reinforcing the site's goal of achieving a closed-loop supply chain.

The ecosystem also includes firms outside the aerospace sectors. Companies like Huawei (华为) are contributing to infrastructure development and digital operations at the site. Leading academic institutions such as the Harbin Institute of Technology (哈尔滨工业大学) and Northwest Polytechnical University (西北工业大学) have also set up a presence in WIAC. More broadly, WIAC itself is referred to as anchoring Hainan's "one core, two belts, and one domain" space development strategy: Wenchang is the core, a "data industry belt" will connect Haikou, Wenchang, and Chengmai, while a "commercial aerospace TT&C belt" will link Sanya, Wenchang, and Lingao." The "application domain" is Hainan and its surrounding waters.